DOCUMENT RESUME

ED 156 162 IR 006 144

AUTHOR Welliver, Paul W.
TITLE Making ITV Relevant: Integrating Television into the Total Instructional System.
PUB DATE Apr 78
NOTE 11p.; Paper presented at the Annual Convention of the Association for Educational Communications and Technology (Kansas City, Missouri, April 1978); For related documents, see IR 006 143-146 and IR 005 143

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Educational Innovation; Educational Needs; Educational Resources; *Educational Television; Elementary Education; Information Dissemination; Inquiry Training; *Science Education; *Systems Approach
IDENTIFIERS Investigative Science in Elementary Education; *Science for the Seventies

ABSTRACT

Following the development of inquiry oriented science curriculum materials, the Science for the Seventies project of the Pennsylvania Department of Education decided to employ the statewide educational television network to support its science education program. However, since contemporary science instruction requires that children actually manipulate materials and equipment, television instruction had to be adapted to functions other than direct teaching. Examples of these functions include: (1) alerting teachers to available resources, (2) guiding teachers in science teaching techniques, (3) supporting language arts and reading instruction, (4) strengthening children's creativity, (5) assisting in inservice teacher training, and (6) assessing student progress in process science. These alternative functions of educational television are based on a model of matching educational needs to resources to develop a total instructional system. (Author/STS)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED156162

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

MAKING ITV RELEVANT:
INTEGRATING TELEVISION INTO THE TOTAL INSTRUCTIONAL SYSTEM

A Presentation at the 1978 Convention

of the

Association for Educational Communications and Technology

Kansas City, Missouri
April 15-21, 1978

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Paul W. Welliver

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM"

by

Paul W. Welliver
Professor of Education
The Pennsylvania State University

IR006144

MAKING ITV RELEVANT:
INTEGRATING TELEVISION INTO THE TOTAL INSTRUCTIONAL SYSTEM

Introduction

In the late 1960s, the Pennsylvania Department of Education developed a new curriculum program in science for the elementary schools of Pennsylvania (2). Based on the inquiry-oriented philosophy of contemporary elementary school science programs, these new curriculum materials, under the title of SCIENCE FOR THE SEVENTIES (SFTS), were developed to assist school districts, schools, and teachers in a transition from traditional approaches to science instruction to a more modern approach. Recently, with some major revisions in the program, the name has been changed to INVESTIGATIVE SCIENCE IN ELEMENTARY EDUCATION (ISEE).

In 1972, the decision was made to employ the Pennsylvania statewide educational television network in order to support the ISEE program. It was at this point that insights were gained into the variety of roles that television might play in supporting a total instructional system.

At first, it was assumed that television would be used to teach the ISEE lessons. However, problems with this arrangement soon became apparent. Contemporary elementary school science instruction requires that children become actively involved in lesson activities, interact with materials, and design and carry out experiments and other manipulations. Viewing instructional television programs does not provide this sort of flexibility and tends to be more passive. Indeed, no progress was made in determining an application of broadcast educational television to elementary school science until the development team accepted the basic proposition that instructional television and the teaching of elementary school science are totally incompatible! You just can't teach elementary school science on television!!

Having accepted this basic idea, the thinking of the development team began to explore other instructional needs that could be satisfied by the television resource. It was this insight that led to the application of television to important instructional roles and functions other than that of teaching.

All of these alternative functions were associated with existing needs of the overall instructional system of which ISEE was a part. The following examples will serve to illustrate how relevant needs arose and how they were approached through the ISEE-ITV system.

EXAMPLES OF ELEMENTS OF THE ISEE-ITV INSTRUCTIONAL SYSTEM

Need: Alerting Teachers to the ISEE Resources

Once the idea was accepted that instructional television would not – indeed could not – be used to teach science to young children, other needs were explored. One of these was the fact that in spite of the extensive

preparation and accumulation of ISEE materials in the State Department of Education, there were still numerous school districts, schools, and teachers who were still not aware of their existence and availability. As a result, it was determined that one role the ITV could play is a publicity function. By producing programs based on ISEE, educators throughout the State would be made aware of this free resource that was available from the Department of Education.

Need: Helping Elementary School Teachers to Teach Science

Although it was felt that the ITV programs could not directly instruct children in science, there were some things that might be done to assist teachers and their classes in preparing to undertake a process-oriented, inquiry science lesson. As a result, a number of techniques were built into the television programs that were designed to model inquiry skills and laboratory techniques for children while also providing some guidance to teachers relative to the kinds of teaching behaviors and instructional strategies that are most appropriate to facilitating inquiry and investigation on the part of the students. Sophisticated procedures were developed to satisfy this important need. (1:14-25)

Need: Supporting Language Arts Instruction

Although the above two areas of need were primary considerations in the development of the ISEE-ITV programs, still other needs arose as the programs became available to the schools. It was only through the appropriate adaptation and adjustment to these needs that the ISEE materials become integrated into the total instructional system.

Along with the release of the ISEE materials there emerged a strong emphasis in the school to move the curriculum "back to the basics." One area of the basics was, of course, the area of language arts. In some schools, there existed a reluctance to teach anything that did not directly contribute to the students' basic 3Rs.

A careful examination of the ISEE materials soon revealed that many of the ISEE activities, and inquiry science activities in general, incorporate important elements of listening, speaking, reading, and writing. The task remained only to identify these elements and make sure that they were brought to the attention of teachers and curriculum directors (3). The result was a further integration of the ISEE materials into the total instructional system.

Need: Supporting Reading Instruction

Along with the general effort directed at relating the ISEE materials to improvement in language arts instruction, a special emphasis was placed on reading. This was due to the strong concern that had developed relative to the general level of reading achievement scores. Again, an analysis of the ISEE materials and books commonly found in elementary school libraries indicated that elementary school science and a program of children's reading

could be mutually supportive (5). Again, the role of ISEE and the ISEE-ITV resource in the total instructional program were significantly strenghtened.

Need: Strengthening Children's Creativity

In recent years, the Pennsylvania Department of Education has conducted an Educational Quality Assessment throughout the State in order to determine the status of children in certain basic areas of their education and development. One of these assessment areas is creativity.

Around 1975, a medium sized school district in central Pennsylvania discovered that its students were not scoring as high as desired in this important area. Upon surveying possible remedies for this problem, the ISEE materials were examined for their potential contribution to stimulating creativity in elementary school children. A careful analysis of the ISEE approach and the elements important to creativity led to the determination of a close relationship between the two. As a result, the ISEE-ITV programs became an important factor in aiding this school district in approaching the problem of improving creative behaviors (6).

Need: Improving Creative Writing

A direct development stemming from the work with ISEE-ITV and creativity was the specific application of ISEE-ITV to improvement of creative writing. After identifying elements of the ISEE-ITV materials and procedures that are known to improve creative writing, an experiment was developed to test their effectiveness. The results of this experiment indicated that students taught with the ISEE-ITV materials improved significantly more in creative writing than did those taught with just the ISEE materials or those taught with a textbook (7).

By addressing needs in the overall instructional system beyond those of the science orientation of the television programs, what was offered by television was accepted in a new perspective and, consequently, was in a greater demand and made a greater contribution to the overall instructional system of the school.

Need: Assisting in Teacher In-Service Training

With the rapid changes in so many curriculum areas, it becomes extremely difficult for elementary school teachers to remain informed about current developments in all of them. As a result, many of the developments in the ISEE-ITV materials were directed toward helping teachers to understand and teach inquiry, process-oriented elementary school science.

This has taken numerous forms ranging from in-service training revolving around an independent study, self-instructional package to a fairly traditional instructional format utilizing the ISEE materials. Perhaps the

most unique of these approaches was one in which a major aspect of the course revolved around what the teacher learned while using the ISEE-ITV programs during school time with her own class in her own classroom!

So, instead of just serving a student instructional function, the ISEE-ITV programs became important to satisfying pressing needs in teacher in-service training.

Need: Assessing Progress in Process Science

One of the major problems encountered by schools utilizing process science was being able to demonstrate progress on the part of their students. This was primarily due to the fact that existing standardized science tests do not measure progress in science processes and those few science process tests that have been developed are mostly designed for one-to-one administration.

Recognizing this to be a vital need for accountability within a school or school district, the ISEE-ITV development team went to work to provide an appropriate resource. The resulting product is a Television Test of Science Processes (8) that can be administered to thousands of students at one time and provide the required data on the progress of student achievement in process science (4).

By addressing this need, SFTS-ITV contributed to still another dimension in the total instructional system of the schools of Pennsylvania.

Discussion

The needs discussed above represent only a sample of the total spectrum of needs that were identified and addressed by the ISEE-ITV project. The purpose was to expand the role of an ITV project from being one of simply teaching one subject to a specific audience to one of adapting to a variety of instructional needs and, consequently, becoming a vital, relevant component of the total instructional system.

In the process, the nature of identified needs began to fall into ten classifications. These were:

1. Community Awareness
2. Community Learning
3. Parent Awareness
4. Parent Learning
5. School Awareness
6. School Learning
7. Teacher Awareness
8. Teacher Learning
9. Student Awareness
10. Student Learning

The question then became, just how could the various ISEE resources and existing communications and administrative channels be applied to solving new needs as they are identified?

INTEGRATING INSTRUCTIONAL NEEDS WITH ISEE-ITV RESOURCES AND RELATED DELIVERY CHANNELS

As instructional needs were identified, so too were a variety of resources either identified or developed which would help to satisfy those needs. Along with these resources were also identified a wide variety of communications and administrative channels that could be employed to reach the specific target audience that was in need of assistance. Examples of these resources are listed under "channel" on Table 1.

As indicated by the four columns on Table 1, the opportunity was now established to identify a particular instructional problem (Problem), determine the general area or areas of need (Area of Need), select the appropriate resources and channels (Channel), and direct them in some orchestrated manner at the appropriate target audience (Target).

How this might be done is illustrated in Table 2. Here, one approach to the problem of a lack of a science program in a school is indicated with a particular set of resources and channels brought together to focus on a school to raise its awareness of the availability of the ISEE-ITV materials. Other solutions could be, and indeed have been, devised.

Table 3 shows an approach to still a different problem and how a combination of resources can be brought together to formulate a solution to it. It is significant to note how the same resources and channels can be employed in two different ways in combination with other channels and resources in order to provide a solution to different instructional problems. As a result, it has been found, for example, that the broadcasting of the ISEE-ITV programs can be utilized in a wide variety of ways to provide a component of a solution to a wide variety of identified problems!

PLANS FOR FUTURE DEVELOPMENT

At the moment, the coordination and orchestration of these various elements is something that is being developed for each new instructional problem that arises. So many of these coordinated solutions have been designed that they provide a useful resource for other schools and teachers if there could be a way of cataloging and keeping track of them.

As a result, a computerized system of problem diagnosis and solution prescription is being developed. The idea is that a variety of solutions have been developed for common instructional problems in elementary school science. These solutions are being gathered and programmed on a computer.

Table 1

ISEE INSTRUCTIONAL SYSTEM

Problem	Area of Need	Channel	Target
		PDE	
		IU	
		In-Service Council	
		Broadcast Council	
		PTA	
		Public Library	
		In-Service Days	
		Newspaper Article	
		Newspaper Column	
		ETV	
		Commercial TV	
		Educational Radio	
		Cable TV	
	Community Awareness	College	
	Community Learning	University	
	Parent Awareness	Continuing Education	Community
	Parent Learning	Correspondence	Parent
	School Awareness	Telephone	School
	School Learning	Learning Package	Teacher
	Teacher Awareness	Comic Books	Child
	Teacher Learning	Class Meetings	
	Student Awareness	Curriculum Guide	
	Student Learning	State Publication	
		Teacher	
		Consultants	
		CAI	
		Dial Access	
		Video Disc	
		Textbooks	
		ITV Handbook	
		Home Learning Centers	
		Magazines	
		Museums	
		Professional Associations	

Table 2

ISEE INSTRUCTIONAL SYSTEM

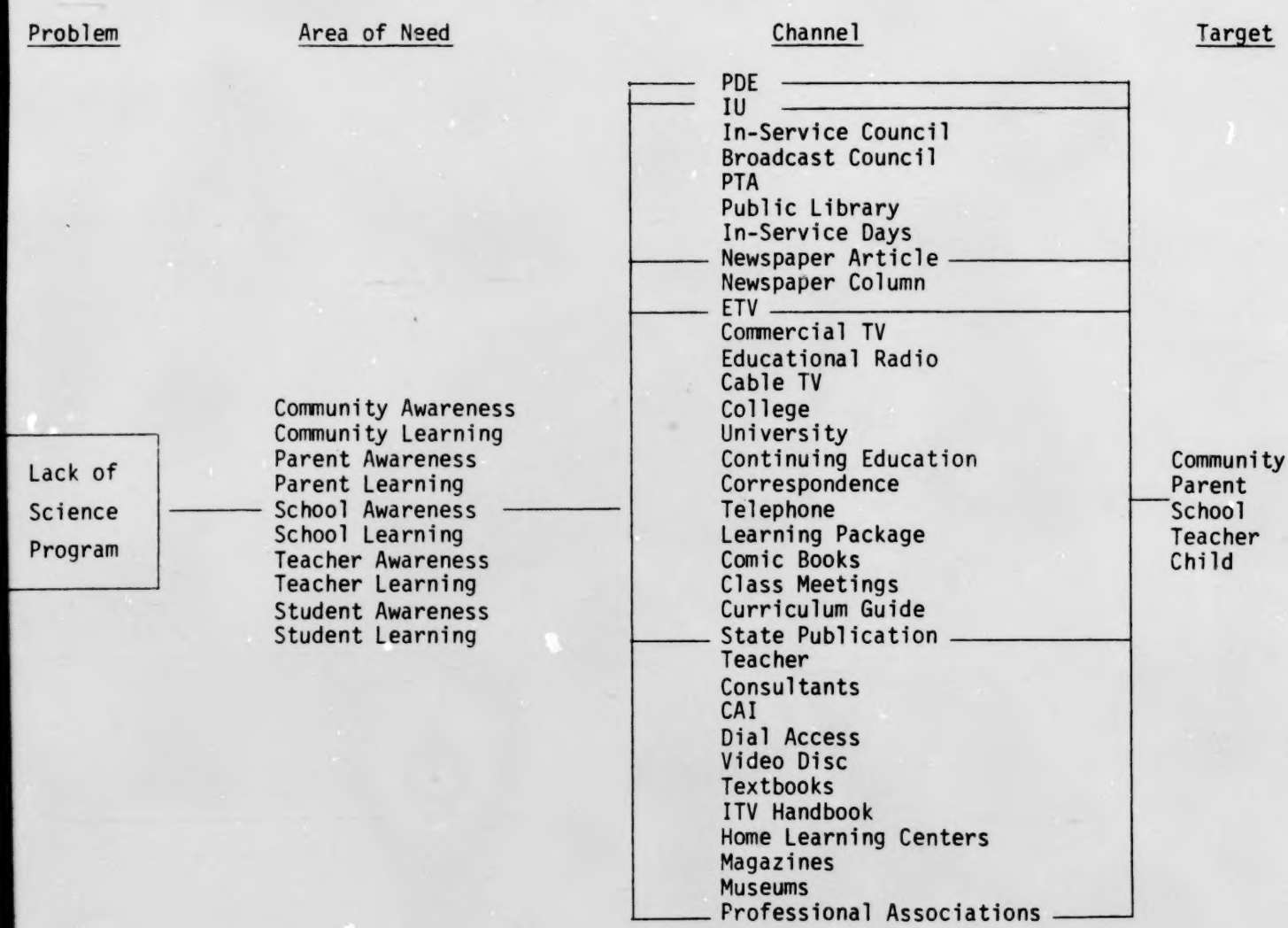
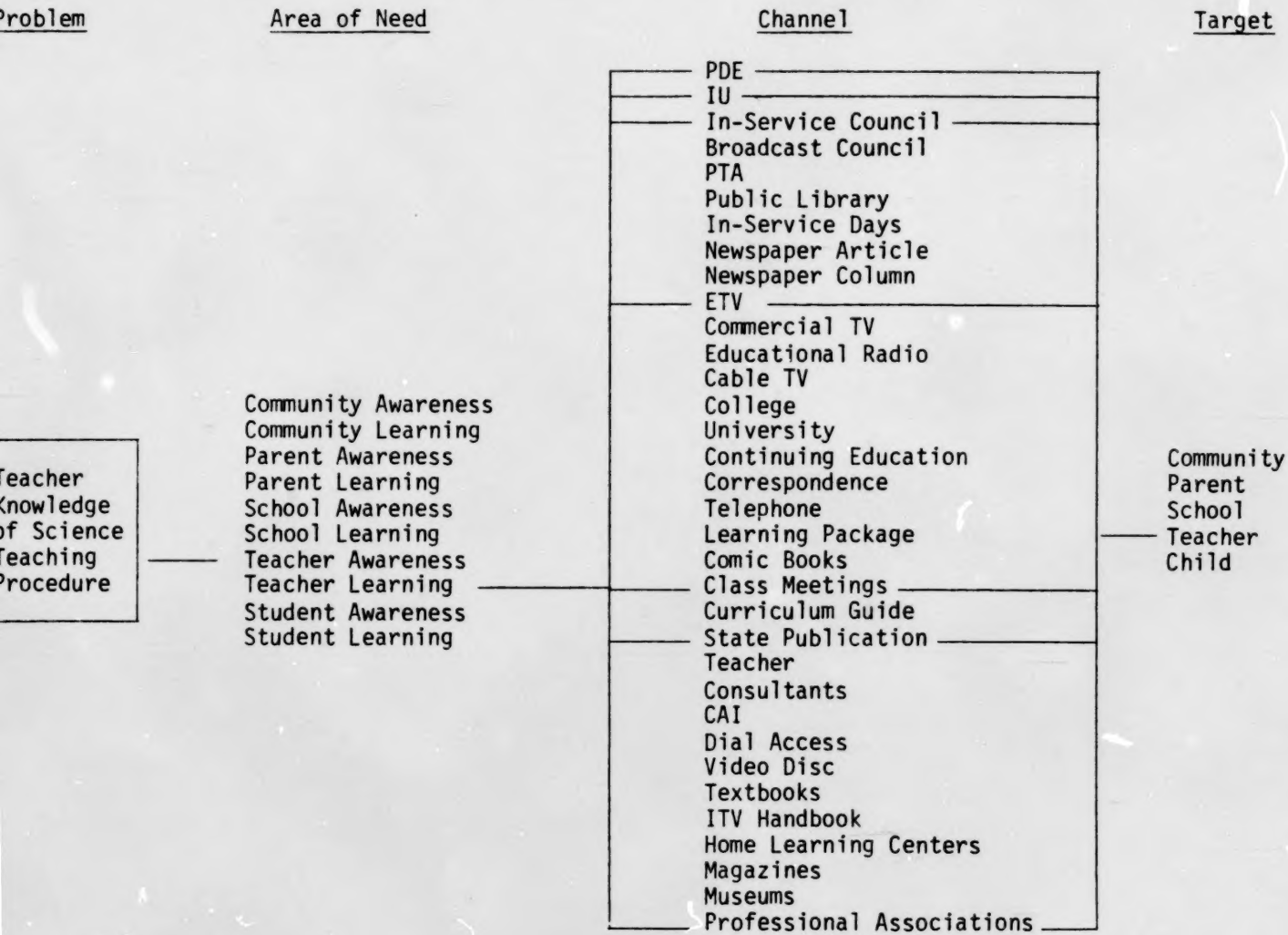


Table 3

ISEE INSTRUCTIONAL SYSTEM



Meanwhile, a diagnostic instrument is being devised that will be used to determine the instructional problems and needs of a particular school and school district. This diagnostic information will then be fed into the computer and from it will be developed a computerized prescription of those resources and channels that can be applied to needs that have been identified.

Once this has been accomplished, the use of television will assume a new dimension – one of becoming an integral part of a complex instructional system.

References

Alfke, Dorothy, Robert Shrigley, and Paul Welliver. Science for the Seventies: ITV Handbook for Teachers. Pennsylvania Department of Education, 1975.

Division of Personal Development. Investigative Science in Elementary Education: Pennsylvania's Resource Guide for Teachers of Elementary Science. Pennsylvania Department of Education, 1977.

Hassler, Donni M. An Interdisciplinary Program: Science for the Seventies and the Language Arts. Unpublished Masters Paper, The Pennsylvania State University, August 1975.

Hill, Robert T. The Development and Implementation of a Model for Administering a Visual Test of Achievement Over Broadcast Television. Unpublished Masters Thesis, The Pennsylvania State University, May 1976.

Jennings, Sandra S. The Integration of Selected Readings into Elementary School Science Instruction. Unpublished Masters Paper, The Pennsylvania State University, August 1975.

Maria, Carl, Theodore Johnson, and Robert Shrigley. Fostering Creativity through Inquiry Instruction. Paper presented at the 1977 Convention of the National Science Teachers Association.

Meyers, Kay. The Effect of SFTS on Stimulating Creative Writing. Unpublished Masters Paper, The Pennsylvania State University, March 1977.

Torrence, David A. The Television Test of Science Processes. Unpublished Doctoral Thesis, The Pennsylvania State University, August 1976.